The Fukushima Disaster Proves That Nuclear Power Risks Are Unmanageable

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> "Nuclear power is never 'safe.' Splitting atoms to produce heat, boil water, and generate electricity is an inherently dangerous activity."

In the following viewpoint Jim Riccio argues that nuclear power always carries with it the risk of a meltdown with devastating consequences. The Fukushima disaster, Riccio maintains, has proven that any risk assessment claiming that certain events are "improbable" does not mean they are impossible. After all, he argues, the Fukushima disaster was caused by the "improbable" double trouble of an earthquake followed by a tsunami. Ignoring such flawed risk assessment, Riccio claims, government safety regulators have allowed safety standards to be compromised to cater to corporate interests. Riccio is a nuclear policy analyst for Greenpeace.

As you read, consider the following questions:

1. According to the author, what is atomic hubris?
2. What percent of risk-significant accident scenarios are not modeled in nuclear risk assessments, according to the viewpoint?
3. Why has the public been exposed to greater risk and the nuclear industry to less regulation, according to Riccio?

The ongoing [March 2011] nuclear disaster at the Fukushima nuclear plant will be delivering up many lessons to those willing to listen. More than three months after the earthquake, tsunami, and subsequent meltdown of three nuclear reactors, TEPCO, the nuclear corporation that owns the plant, is no closer to controlling the meltdowns or securing 20 years of radioactive material at risk in the waste pool. A few things, however, are becoming clear.

Nuclear Power Is Never Safe

Nuclear power is never "safe." Splitting atoms to produce heat, boil water, and generate electricity is an inherently dangerous activity. Splitting atoms can be made less dangerous, but it can never be "safe." The 104 nuclear power plants in the United States and the 440 operating around the world all carry the threat of a catastrophic meltdown with devastating consequences. To claim this technology is safe is no more than atomic hubris. Nuclear power plants will fail, and when they do, the consequences are catastrophic for individuals and society. As the codiscoverer of the DNA molecule once put it, "the idea that the atom is safe is just a public relations trick."

Fukushima has reminded us, too, that probability will not protect the public from nuclear meltdowns. Long before the disaster at Fukushima, I recommended that U.S. nuclear regulators read Nassim Nicholas Taleb's *The Black Swan*. Taleb addresses the impact of low-probability, high-consequence events such as Fukushima and points out the psychological trap of relying on probability to protect us. Taleb has intentionally avoided doing interviews on the Fukushima fiasco, but wrote:

> I spent the last two decades explaining ... why we should not talk about small probabilities in any

> domain. Science cannot deal with them. It is irresponsible to talk about small probabilities and make people rely on them, except for natural systems that have been standing for 3 billion years (not manmade ones for which the probabilities are derived theoretically, such as the nuclear field for which the effective track record is only 60 years).

Probability provides cold comfort when reactors are overwhelmed by forces they were never designed to resist—such as the meltdown of the radioactive fuel rods that make up the core of the nuclear reactor. But the nuclear industry and its regulators have been doing precisely what Taleb warns against.

As has been well documented by the Associated Press, the *New York Times*, *Huffington Post*, ProPublica, and others, the Nuclear Regulatory Commission, or NRC, has been captured by the nuclear industry and has been in regulatory retreat for over a decade. At the behest of the industry, the NRC has been busy deregulating safety standards based on the probability that the Black Swan, i.e., a meltdown, will not occur. Sadly, these same regulators have ignored the flaws in their risk assessments. According to NRC documents, between 42 percent and 59 percent of the most risk-significant accident scenarios aren't even modeled in nuclear risk assessments. The NRC and the nuclear industry have relied on risk models that leave them half blind to the very events they're attempting to avoid.

Corporate Profit Outweighs Public Safety

Despite recognized flaws in their risk assessments, government regulators have allowed the nuclear industry to whittle away at regulations intended to protect the public in order to reduce the cost of producing electricity with nuclear reactors. As a result, safety has been compromised. The nuclear bureaucrats have lost sight of their safety mission and instead have weakened nuclear plant regulations to allow reactors to run longer and harder than ever before. Government officials have repeatedly placed corporate profit ahead of public safety. In order to increase the corporate bottom line, the public has been exposed to greater risk while the industry is exposed to less regulation. All the while, these corporations and captured regulators claim splitting atoms on a shoestring is "safe."

As we saw at Three Mile Island, 1 Chernobyl,2 and now Fukushima, nuclear power is never "safe." The improbable happens, and regulations put in place by nuclear bureaucrats are insufficient to the catastrophe. Probability will not protect the public from the consequences of a nuclear meltdown. The nuclear industry's practice of lulling regulators into complacency based on low probability of a meltdown is irresponsible at the least. Rather than promoting the expanded use of nuclear power, government regulators will be lucky if they can manage the end of the nuclear age and secure deadly radioactive wastes without more Black Swan events like the fiasco at Fukushima.

Further Readings

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